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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/556,607	04/21/2000	Arthur Joseph Kalb	135469-200200 (P04342)	6834

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EXAMINER	
BAYARD, EMMANUEL	

ART UNIT	PAPER NUMBER
2631	14

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/556,607	KALB, ARTHUR JOSEPH	
	Examiner	Art Unit	
	Emmanuel Bayard	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-57* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-57* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This is in response to amendment after final filed on 2/17/04 in which claims 1-57 are pending. The applicant's amendments have been fully considered but they are moot base on the prior art rejection of Haga and Paul. Therefore this case is made final (see Examiner response to amendment below).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haga et al U.S. Patent No 5,451,900 in view of Paul U.S. Patent No 6,198,417 B1.

As per claims 1, 20 and 39 Haga discloses an apparatus including a circuit for converting an analog signal to a pulse width modulated signal comprising: an integration stage (see figs. 1-2, 7-8, 11-12 and 18-20 element 10 and col.3, lines 53-65) configured to receive combine and integrate an analog input signal and a set of one or more feedback signals and in accordance therewith provide a set of one or more integrated signals; a modulation stage, (see element 30, and col.3, lines 59-65) coupled to said integration stage, configured to receive and modulate a final portion of said set of one or more integrated signals and in accordance therewith provide a time pulse (see abstract); a first feedback stage (see element 30 and col.1, lines 13-26 and col.7, lines 43-46), coupled between said modulation stage and said integration stage, configured to

receive said time pulse width modulation (see abstract) in accordance therewith provide a first portion of said set of one or more feedback signals.

However Hag does not teach providing discrete time pulse and said modulation stage and said integration stage, configured to receive said discrete time pulse width modulation.
Paul teaches providing discrete time (see col.1, lines 25-26) pulse and said modulation stage and said integration stage, configured to receive said discrete time pulse width modulation.

It would have been obvious to one of ordinary skill in the art to implement the discrete time of Paul into Haga as to accurately analyze the modulator by modeling ideal quantization noise and other sources of non-ideal noise introduced by the ADC converter.

As per claims 2, 21 and 40 the apparatus of Haga does include an adder and an integration stage (see col.18, lines 52-53).

As per claims 3, 22 and 41 the apparatus of Haga would include a feed forward circuit as to accurately analyze the modulator by modeling ideal quantization noise and other sources of non-ideal noise introduced by the feed forward ADC converter.

As per claims 4, 23 and 42 the apparatus of Haga does include a continuous integration stage (see col.14, lines 58-67).

As per claims 5, 24 and 43 the apparatus of Haga does include at least one sampled integrator circuit (see element 10).

As per claims 6, 7, 25, 26 and 44-45, the apparatus of Haga would include a quantization stage as to accurately analyze the modulator by modeling ideal quantization noise and other sources of non-ideal noise introduced by the ADC converter.

As per claims 8, 27 and 46, the apparatus of Haga does includes a Pulse width modulation stage (see col.1)

As per claims 9, 28 and 47-49 the apparatus of Haga does include a first feedback stage having a continuous integration stage (see col.14, lines 58-67)

As per claim 10, the apparatus of Haga does include a first feedback stage having a discrete time (see col.1).

As per claims 11, 29-30 the apparatus of Haga does include a first feedback stage having a filter (see col.11, line 27)

As per claims 12, 31 and 50 the apparatus of Haga inherently includes a second feedback stage and a quantization stage and an integration stage.

As per claims 13, 32 and 51 the apparatus of Haga would include a second adder as to accurately remove or reduce ideal quantization noise and other sources of non-ideal noise introduced by the ADC converter.

As per claims 14, 33 and 52 the apparatus of Haga does include a continuous integration stage (see col.14, lines 58-67).

As per claims 15, 16, 34-35 and 53-54 the apparatus of Haga would include a quantization stage as to accurately analyze the modulator by modeling ideal quantization noise and other sources of non-ideal noise introduced by the ADC converter.

As per claims 17, 36 and 55, Haga does include a Pulse width modulation stage (see col.1).

As per claims 18, 37 Haga does include a first feedback stage having a continuous integration stage (see col.14, lines 58-67).

As per claims 19, 38 and 56-57 the apparatus of Haga does include a first feedback stage and a second feedback stage and a filter (see figs 1, 2 and col.11, line 27).

Response to Arguments

Applicant's arguments filed on 2/17/04 have been fully considered but they are not persuasive.

In paragraph 2, page 19 of the response, applicant argues that Haga "amplitude modulation 40" is not coupled to "integrating circuit 10" and "feedback circuit" 30" is not coupled between "amplitude modulation circuit 40" and integrating circuit 10. Examiner respectfully disagrees. This is not persuasive since col.3, lines 53-65 and figures 1-2, 7-8 and 18-20 clearly show an integrating circuit (10), a feedback circuit (30) and an amplitude modulation in connection with each other. In addition figure 18 shows a comparing circuit for comparing the amplitude modulated signal and provides this signal to the feedback circuit (30).

In paragraph 2, page 19 of the response, applicant argues that Haga signal is not a discrete time pulse width modulation. This is not persuasive since the combination of Haga and Paul clearly teaches such limitation.

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is (703) 308-9573. The examiner can normally be reached on Monday-Thursday from 8:00 AM - 5:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour , can be reached on (703) 306-3034. The fax phone number for this Group is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3800.

Emmanuel Bayard

Primary Examiner

Wednesday, February 25, 2004